"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

POTAPOV, A. A., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 42, No 1, Jan/Feb 73, pp 5-11

with mass occurence the most thermophilic were Chr. relictus and H. peculiaris, which attacked at the hottest time in the afternoon. In the evening, when inversion air currents developed, A. vexans mosquitoes were displaced upwards to the tree tops.

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USSR

UDC 621.762.2

MEL'NIK, V. G., FAL'KO, V. T., and DAN'KOVA, L. D., Shostka Branch of All-Union Scientific Research and Planning Institute of Chemical and Photographic Industry

"Method of Making Magnetic Powder"

USSR Authors' Certificate No 270712, Cl. 12 n, 49/02, (C 01 g), filed 12 Apr 69, published 17 Aug 70 (From RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G407P by S. Krivonosova)

Translation: A method is suggested for making magnetic powder by consecutive treatment of iron sulfate with alkali and ammonium nitrate with subsequent rinsing off of the resultant precipitate, filtration, drying, and roasting. In order to increase product quality, the process is carried on in the presence of a water-soluble nickel salt, for example nickel sulfate, chloride, or nitrate. The nickel salt is introduced in the amount of 4-7%.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 539.194

BABKOV, L. M. KOVNER, M. A., MEL'NIK, V. I., PUCHKOVSKAYA, G. A., KHARCHENKO, N. P., and SHPAK, N. T.

"Vibration, Luminescence, and Absorption Spectra of Benzophenone and Their Interpretation"

Leningrad, Optika i Spektroskopiya, Vol 35, No 1, Jul 73, pp 58 - 64

Abstract: Benzophenone has a number of properties that are presently of interest: significant piezoelectric effect, 100% conversion from the excited singlet level to the triplet state, high photochemical activity in hydrogen-containing solvents, and effective transfer of excitation energy. The majority of these effects are due to the characteristics of the electron structure of the benzophenone molecule.

In this study, infra-red spectra and luminescence and absorption spectra of benzophenone are obtained and their oscillatory structure is resolved. The problem of normal molecular oscillations of benzophenone in the ground electron state is solved. On the basis of a calculation of the frequencies and shapes of oscillations the frequencies are related to types of symmetry of the C_2 group and to oscillations of bonds and angles. The changes in the oscillatory frequencies with excitation to the singlet and triplet electron states are determined and an interpretation of the vibron transitions is suggested.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 541.14+535.34-15+535.373

MEL'NIK, V. I., PUCHKOVSKAYA, G. A., KHARCHENKO, N. P., and SHPAK, M. T.

"Peculiarities of IR Absorption and Phosphorescence of Products of Benzophenone Photochemical Reactions"

Leningrad, Optika i Spektroskopiya, Vol 34, No 1, Jan 73, pp 101-105

Abstract: The authors isolated in pure form the products of the benzophenone-benzpinacone photochemical reaction, studied their IR absorption and phosphorescence spectra, and compared the results with benzophenone data. The effect of low temperatures and solution concentrations on photochemical reaction efficiency was studied. There was found to be considerable weakening of the photochemical transformations of benzophenone at low temperatures.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

1/2 514 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--CEILING OCAN OF PRODUCT I MASSECUITE FROM CONCENTRATED SIRUPS -U-

AUTHOR-(05)-BELOSTOTSKIY, G.S., SAVCHUK, N.K., MELNIK, V.I., KOT, YU.O., BELOSTOTSKIY, L.G.

COUNTRY OF INFO--USSR

SOURCE--SAKH. PROM. 1970, 44(4), 48-51

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOOD TECHNOLOGY, SUCROSE, GRANULE FORMATION, PARTICLE SIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0301 STEP NO--UR/0339/70/044/004/0048/0051

CIRC ACCESSION NO--AP0135796

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

2/2 014 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135796

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BOILING DOWN OF MASSECUITE FROM CONCD. SIRUPS IS COMPARED WITH BOILING DOWN FROM AQ. MIXES. ON EVAPG. A SIRUP CONTG. SIMILAR TO 70PERCENT DRY SUBSTANCES IN VACUUM WITHOUT JUICE MIXES OR AQ. MIXES, THE PRODUCTIVITY OF THE VACUUM EVAPORATOR INCREASES BY 10PERCENT, THE COLOR INDEX OF THE SUGAR IS 0.1 UNIT LESS, AND THE REMAINING CRITERIA CHARACTERIZING MASSECUITE QUALITY ARE NO WORSE THAN WITH MASSECUITE BOILED DOWN WITH THE AID OF AQ. OR JUICE MIXES. THE PARTICLE SIZE DISTRIBUTION OF THE SUGAR CRYSTALS IS ABOUT THE SAME WITH BOTH METHODS. THE METHOD IS RECOMMENDED FOR BOTH CONCD. AND CONVENTIONAL SIRUPS. FACILITY: SVERDLOSAKHAROTREST, VINNITSY, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

1/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--MAGNETIC SUSCEPTIBILITY OF HOLES IN MERCURY TELLURIDE, INDIUM ANTIMONIDE, AND GERMANIUM -U-

AUTHOR-(04)-KOLOMYETS, B.T., GELMONT, B.L., IVANOVOMSKIY, V.I., MELNIK, V.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 299-304

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--MAGNETIC SUSCEPTIBILITY, MERCURY COMPOUND, TELLURIDE, INDIUM ANTINOMIDE, GERMANIUM, HALL CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0938 STEP NO--UR/0449/70/004/002/0299/0304

CIRC ACCESSION NO--AP0116447

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

2/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116447

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MAGNETIC SUSCEPTIBILITY (X) MEASUREMENTS OF P TYPE HGTE, INSB, AND GE WERE CARRIED OUT IN A WIDE RANGE OF TEMP. AND CARRIER D. TO DET. THE CONTRIBUTION OF LIGHT AND HEAVY HOLES. AN EXPLICIT EXPRESSION FOR X OF ELECTRONS IN A WEAK MAGNETIC FIELD IS DERIVED AS A FUNCTION OF FERMI ENERGY IN THE CASE OF INSB. A SIMILAR EXPRESSION WHERE ONLY S P INTERACTION IS ACCOUNTED FOR IS ALSO PRESENTED. THE SAME EXPRESSIONS ARE VALID ALSO FOR HGTE, TAKING INTO ACCOUNT THAT E SUBG IS SMALLER THAN 0. CARRIER DS. WERE DETD. FROM HALL COEFF. MEASUREMENTS AT 4.2DEGREESK, WHERE THE EFFECT OF THE MAGNETIC FIELD IS NEGLIGIBLE. FROM 4.2 TO SIMILAR TO 77DEGREESK, X OF P HGTE IS ALMOST INDEPENDENT OF TEMP. AND FROM 77 TO IS SIMILAR TO 290DEGREESK IT RISES STEEPLY WITH TEMP. THE INCREASE OF HOLE CONCN. LEADS TO A DECREASE OF X, IMPLYING THAT HOLES IN P HGTE ARE DIAMAGNETIC. THE TEMP. DEPENDENCE OF X OF P INSB IS SIMILAR EXCEPT FOR THE SAMPLE WITH N SUBP EQUALS 5 TIMES 10 PRIME13-CM PRIME3, WHERE X DECLINES WITH INCREASING TEMP. THIS IS ASSOCD. WITH THE INCREASE OF ELECTRON D. IN THE REGION OF MIXED COND. THE EXPTL. CARRIER D. DEPENDENCE OF X IN P HGTE IS A MONOTONICALLY DECAYING CURVE WHICH IS CLOSE TO THE THEORETICALLY CALCD. EXCEPT FOR THE LOWEST HOLE CONCN. SAMPLES, WHERE THE PARAMAGNETIC CONTRIBUTION HAS TO BE ACCOUNTED FOR AT GREATER THAN 4.2DEGREESK. THE CONCN. DEPENDENCE OF K OF P INSB IS NONMONOTONIC AND SHOWS THAT THIS SEMICONDUCTOR IS PARAMAGNETIC AT 3 TIMES 10 PRIME16 MINUS 6 TIMES 10 PRIME18-CM PRIME3, DIAMAGNETIC AT 6 TIMES 10 PRIME18 MINUS 3.5 TIMES 10 PRIME19-CM PRIME3, AND AGAIN PARAMAGNETIC AT 3.5 TIMES 10 PRIME19-CM PRIME3.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

3/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116447

ABSTRACT/EXTRACT--THE WAVE VECTOR DEPENDENCE OF LIGHT CARRIER ENERGY IS NONPARABOLIC BECAUSE OF STRONG S P INTERACTION. THE PARAMAGNETIC CHARACTER OF N HGTE AND P INSB IMPLIES THAT OTHER BANDS BESIDES S P INTERACTION ARE INVOLVED. THE EFFECT OF CRIMPING OF THE ISOENERGETIC SURFACE OF HEAVY HOLES ON THEIR X IS CONSIDERABLE FOR GE, BUT IS INSIGNIFICANT WITH P HGTE AND P INSB. FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

IVANOV-OMSKIY, V. I., KOLOMIYETS, B. T., MELNIK, V. M. and OGORODNIKOV, V. K., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad

"Magnetic Susceptibility of HgTe"

Abstract: Measurements of magnetic susceptibility in fields above critical (H_{cr} = 3 koe) when anomalous susceptibility disappears are analyzed. The Faraday method was used to measure the magnetic susceptibility of n-HgTe single crystals over a wide range of temperatures (2-300°K) and concentrations ($1.6 \cdot 10^{15}$-$4 \cdot 10^{18}$ cm^{-3}). The lattice susceptibility was determined from measurements on pure samples at liquid helium temperatures and was found to be diamagnetic and equal to $(-0.34 \pm 0.003) \cdot 10^{-6}$ cgs electrostatic units. The electron gas was paramagnetic over the entire range of concentration and temperatures. The results were analyzed on the basis of the theory taking into account the inverse order of zones, as in α Sn. The agreement between experiment and theory is given as an argument for using the inverse zone structure in HgTe.

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

242490 INTEGRAL CONVERTER which has wider applications in computers and calculators technology has the outputs of the higher register classes connected to the primary inputs of the coincidence circuit whose secondary inputs are connected to the computer outputs and the input is connected with the input of the "phohibition" circuit. Said input is also connected to an input of a group of valves, whose secondary inputs are connected to the lower register classes.
26.12.67 as 1206318/18-24. E.I. DUKHNICH & V.E. MELNIK. TAGANROG RADIOTECHNICAL INST. (5.9.69)
Bul 15/25.4.69. Class 42m3. Int.Cl.G 06f.

AUTHORS: Dukhnich, Ye. I.; Mel'nik, V. Ye.
Taganrogskiy Radiotekhnicheskiy Institut

19781610

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC: 547.26'118

ZEMLYANSKIY, N. I., MEL'NIK, Ya. I., TURKEVICH, V. V., L'vov State University imeni Ivan Franko

"Unsaturated Esters of Dithiophosphoric Acid. VIII. Addition of Dialkyldithiophosphoric Acids to Their S-Propargyl Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1269-1273

Abstract: The authors studied addition reactions of dialkyl-dithiophosphoric acids with their S-propargyl esters. The reactions were carried out in the presence of benzoyl peroxide or sodium alkoxide. It was found that in both cases the addition reaction takes place with the formation of a single product -- 1,2-bis(0,0'-dialkyldithiophosphato)-2-propene -- in accordance with Markovnikov's rule. The adduct ratio was 1:1 in all instances.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

MEL'NIK, Ya. I., ZEMLYANSKIY, N. I.

"Method of Production of Symmetrical or Nonsymmetrical O, O, O', O'-Tetra-alkyl-S, S'-Isopropyline Bis-dithiophosphates"

USSR Author's Certificate No 296772, Filed 7/01/70, Published 20/04/71, (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 N596 P by O. A. Korotkova).

Translation: Dithiophosphates with the general formula $(RO)_2P(S)SCH_2C(=CH_2)-SP(S)(OR')_2$ (I) (R and R' are alkyls) are produced by reaction of the corresponding O, O-dialkyldithiophosphoric acid (II) with S-propargyl ester of O, O-dialkyldithiophosphoric acid (III) in the presence of NaOEt (IV) at 95°. Example: 2.24 g III (R' = Et) is heated at 95° for 8 hours with 2.14 g II (R = iso-Pr) in the presence of IV and 3.2 g (73%) I (R = iso-Pr, R' = Et) is separated by the ordinary methods, b.p. 139°/4 10^{-4}, $n^{20}D$ 1.5392, d_4^{20} 1.1732. Similarly, I (R = R' = Et) is produced, b.p. 132°/4 10^{-4}, $n^{20}D$ 1.5509, d_4^{20} 1.2126. I has infecticidal activity.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 536.27

SOLOZHENKIN, P. M., ZEMLYANSKIY, N. I., CHERVIN, I. I., and MEL'NIK, Ya. I.,
Institute of Chemistry, Academy of Sciences Tadzhik SSR, and L'vov State
University imeni I. Franko

"Nuclear Magnetic Resonance Spectra of Dithiophosphorus Acids"

Dushanbe, Doklady Akademii Nauk Tadzhikskoy SSR, Vol 14, No 6, 1971, pp 38-42

Abstract: To study the spin-spin coupling of phosphorus with hydrogen, dithiophosphates and dithiophosphinates were investigated with nuclear magnetic resonance (NMR) spectroscopy. High resolution NMR spectra were recorded for potassium dithiophosphates with acetylene and alkyl groups on the Varian HA-100 spectrometer, at a working frequency of 100 MHz. The NMR spectrum of potassium O-O-dipropargyldithiophosphate consists of a triplet of the CH≡group due to spin-spin interaction of this proton with the methylene group, and two doublets of the CH_2 group. The doublets of the CH_2 group are associated by interaction of protons with the phosphorus nucleus via oxygen. In dimethylmonothiophosphate, the CH_3 group, under the influence of the P^{31} atom, is split into the doublet $J_{CH_3-P31} = 12$ Hz. The NMR spectrum of potassium O-O-dicrotyldithiophosphate consists of the CH_3 doublet, the multiplet of the CH = CH, and the doublet CH_2O, whose

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SOLOZHENKIN, P. M., et al., Doklady Akademii Nauk Tadzhikskoy SSR, Vol 14, No 6, 1971, pp 38-42

components do not have a completely resolved fine structure due to the small constant of spin-spin interaction between protons J_{CH_2-CH} = 2Hz. Similarly, the NMR spectra of the following compounds were recorded and analyzed: potassium O-O-di(beta-methyl)-allyldithiophosphate, potassium O-O-diethyl-dithiophosphate, and sodium mono- and dithiophosphinates. Based on the foregoing data, it can be concluded that in dithiophosphinates the spin-spin coupling J_{HP} is extended even to protons separated from phosphorus by several bonds; this long-range spin-spin coupling is not observed in dithiophosphates.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

UDC 547.26'118

USSR

MEL'NIK, Ya. I., and ZEMLYANSKIY, N. I.

"Unsaturated Dithiophosphonic Acid Esters. Part VI. Acyl Derivatives of Unsaturated Dithiophosphate Esters"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2111-2112

Abstract: Research on the synthesis and properties of unsaturated dithiophosphoric acid esters led to the preparation of acyl derivatives of O,O-dialkyl(alkynyl) dithiophosphoric acids by reaction of O,O-di-β-methylallyl-, O,O-di-γ-methylallyl O,O-diallyl and O,O-dipropargyl dithiophosphates of potassium with acetic, monochloroacetic, trichloroacetic, butyric and isobutyric acid halides. The structures of the products are supported by IR spectra. The saponification and acylation of the synthesized compounds were studied. Saponification with an aqueous solution of potassium hydroxide yields potassium salts of the corresponding dithiophosphoric acids indicating a break of the C-S bond. In the reaction of the obtained acyl derivatives with o-nitrophenol in the presence of potash in a solution of anhydrous benzene they act as acylating agents to form potassium o-nitrophenylacetate and O,O-alkyl(alkynyl) dithiophosphates.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

UDC 547.26'118.07

USSR

MEL'NIK, Ya. I., and ZEMLYANSKIY, N. I.

"A Method of Making Symmetric or Asymmetric 0,0,0',0'-Tetraalkyl-S,S'-iso-propylene-bis-dithiophosphates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 9, Mar 71, Author's Certificate No 296772, Division C, filed 7 Jan 70, published 2 Mar 71, p 82

Translation: This Author's Certificate introduces: 1. A method of making 0,0,0',0'-tetraalkyl-S,S'-iso-propylene-bis-dithiophosphates. As a distinguishing feature of the patent, 0,0-dialkyldithiophosphoric acid is interacted with S-propargyl ether of 0,0-dialkyldithiophosphoric acid with heating in the presence of an alcoholate of an alkali metal with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that heating is done at 95°C. 3. A modification of this method in which sodium ethylate is used as the alcoholate.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

1/2 041 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--UNSATURATED ESTERS OF DITHIOPHOSPHORIC ACID. III. SYNTHESIS OF UNSATURATED DITHIOPHOSPHORIC ACID SALTS -U-

AUTHOR-(02)-MELNIK, YA.I., ZEMLYANSKIY, N.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 791-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, ORDNANCE

TOPIC TAGS--PHOSPHORUS SULFIDE, ORGANIC SYNTHESIS, LEAD COMPOUND, COMPLEX COMPOUND, SILVER COMPOUND, THERMAL DECOMPOSITION, EXPLOSIVE, NICKEL COMPLEX, IR SPECTRUM, UNSATURATED HYDROCARBON, POLYMERIZATION, GEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0821 STEP NO--UR/0079/70/040/004/0791/0795

CIRC ACCESSION NO--AP0134554

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

2/2 041 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING CH SUB2:CHCH SUB1 CH TO P SUB2 S SUB5 IN ET SUB2 O, HEATING, AND ADDING K SUB2 CO SUB3 PPTD. (CH SUB2:CHCH SUB2 O) SUB2 PS SUB2 K, M. 126DEGREES; SIMILARLY WERE PREPD.: DIMETHALLYL ESTER ANALOG, M. 115DEGREES; DI-MECH:CHCH SUB2 ESTER ANALOG, M. 135DEGREES; AND DICINNAMYL ESTER ANALOG, M. 140DEGREES. TREATING THE K SALTS WITH PB(NO SUB3) SUB2 SOLN. GAVE ((RO) SUB2 PS SUB2) SUB2 PB (R SHOWN), WHICH WERE SOL. IN MOST ORG. SOLVENTS AND WERE PPTD. WITH H SUB2 O:CH SUB2:CHCH SUB2 (I) M. 37DEGREES; CH SUB2:CMECH SUB2 (II), M. 27DEGREES; MECH:CHCH SUB2 M. 63DEGREES; HC TRIPLE BOND CCH SUB2 M. 80DEGREES. THE K SALTS TREATED WITH AGNO SUB3 SOLN. SIMILARLY GAVE (RO) SUB2 PS SUB2 AG (R GIVEN): CH SUB2:CHCH SUB2, DECOMPD. 136DEGREES; CH SUB2:CMECH SUB2, DECOMPD. 148DEGREES; MECH:CHCH SUB2, DECOMPD. 94DEGREES; HC TRIPLE BOND CCH SUB2 DECOMPD. AT UNSTATED TEMP. WITH EXPLOSIVE VIOLENCE ON BEING HEATED; ALTHOUGH THIS SALT WAS INSOL. IN ORG. SOLVENTS AND IN H SUB2 O, THE OTHER AG SALTS COULD BE CRYSTD. FROM VARIOUS ORG. SOLVENTS. THE K SALT AND NICL SUB2 GAVE VIOLET ((CH SUB2:CHCH SUB2 O) SUB2 PS SUB2) SUB2 NI, M. 120DEGREES. IR SPECTRA SHOW THAT I AND II WERE POLYMD. TO GELS BY BEING HEATED WITH BZ SUB2 O SUB2.

FACILITY: L'VOV. GOS. UNIV. IM. FRANKO, LVOV, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

ZEMLYANSKIY, N. I., MEL'NIK, YA. I.

"A Method for Preparing Symmetrical and Nonsymmetrical o,o,o' o'-Tetra-Alkyl-s,3'-propylenebisdithiophosphates"

USSR Author's Certificate No 254510, class 12o, 26/01 (C 07 f), filed 18 Nov 68, published 23 Mar 70 (from RZh-Khimiya, No 21 (II), 10 Nov 70, Abstract No N561 P by I. A. Mel'nikova)

Translation: These compounds, active as insecticides, are obtained from the reaction of O,O-dialkyldithiophosphoric acids with unsaturated esters of dithiophosphoric acids in the presence of benzoyl peroxide at 85°. For example, a mixture of 2.26 g of O,O-diethyl-S-allyldithiophosphate, 0.02 g of benzoyl peroxide, and 3.72 g of O,O-diethyldithiophosphoric acid is heated at 85° and stirred for 24 hours. The oil is dissolved in C_6H_6 solution, which is treated with 5% Na_2CO_3 solution, washed with water, dried with $CaCl_2$, and allowed to evaporate, forming 3.54 g of O,O,O-tetraethyl-S,S'-propylenebisdithiophosphate, yield 86%, boiling point 110°/0.004, $n^{20}D$ 1.5402, d_4^{20} 1.1931. The following are prepared in a similar fashion (the compounds, yield in %, boiling point in °C, $n^{20}D$,

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

ZEMLYANSKIY, N. I., et al, USSR Author's Certificate No 254510, class 12o, 26/01 (C 07 f), filed 18 Nov 68, published 23 Mar 70 (from RZh-Khimiya, No 21 (II), 10 Nov 70, Abstract No N561 P by I. A. Mel'nikova)

d_4^{20} are given): 0,O-diethyl-O',O'-dipropyl-S,S'-propylenebis-dithiophosphate, 82, 118/0.004, 1.5336, 1.1599; O,O-diisopropyl-O', O'-diethyl-S,S'-propylenebisdithiophosphate, 80, 116/0.004, 1.5300, 1.1629.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

UDC 547.26'118

USSR

ZEMLYANSKIY, N. I., and MEL'NIK, Ya. I., L'vov State University imeni Ivan Franko

"Unsaturated Esters of Dithiophosphoric Acid. V. Mixed Esters of O,O-Dialkynyl (alkenyl) dithiophosphoric Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 40-43

Abstract: Four series of O,O-dialkynyl(alkenyl) dithiophosphates were prepared in 64-94% yields by the reaction of potassium O,O-dipropargyl-, O,O-diallyl-, O,O-di(beta-methylallyl)-, and O,O-di(gamma-methylallyl) dithiophosphates with alkyl, alkenyl, and alkynyl halides. Potassium O,O-dipropargyl dithiophosphate with propargyl bromide in acetone solution gave an 89% yield of O,O-dipropargyl S-propargyl dithiophosphate. The following mixed esters were similarly prepared: O,O-dipropargyl S-alkenyl(alkyl or aryl)-, O,O-diallyl S-alkenyl(alkyl or aryl)-, O,O-di(beta-methylallyl) S-alkenyl(alkynyl, alkyl, or aryl)-, and O,O-di(gamma-methylallyl) S-alkenyl(alkynyl, alkyl, or aryl) dithiophosphates. The presence of hydroquinone was required to inhibit polymerization of the esters. All the above esters are liquids. Bromination of O,O-diallyl S-ethyl dithiophosphate in carbon tetrachloride with diffuse

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ZEMLYANSKIY, N. I., et al, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 40-43

light at room temperature gave an 58% yield of O,O-di(beta, gamma-dibromopropyl) S-ethyl dithiophosphate, an oil. Similarly the tetrabromo derivative of O,O--di(beta-methylallyl) S-methyl dithiophosphate and the dibromo derivative of allyl O,O-diethyl thiophosphate were prepared in 75 and 65% yields, respectively.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 547.26'118

ZEMLYANSKIY, N. I., MEL'NIK, YA. I., Lvov State University imeni Ivan Franko, Lvov, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Unsaturated Esters of Dithiophosphoric Acids. VII. Free Radical Addition of the Dialkyldithiophosphoric Acids to Their Unsaturated Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1713-1716

Abstract: A reaction of the addition of dialkyldithiophosphoric acid to O,O-dialkyl-S-allyl esters of the dithiophosphoric acids in the presence of benzoyl peroxide is reported. The reactions lasted for 26 hrs at 85° yielding oily products soluble in organic solvents and insoluble in water. The results obtained show that the reaction goes against the Markovnikov's rule, by the free radical mechanism. Properties of some symmetric and unsymmetric O,O,O',O'-tetraalkyl-S,S'-propylenebisdithiophosphates are tabulated as well as three representative IR spectra.

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USSR UDC 547.261'118

MEL'NIK, YA. I., and ZEMLYANSKIY, N. I.

"Unsaturated Esters of Trithiophosphoric Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1015-1019

Abstract: Continuing their studies on the interaction of unsaturated alcohols with phosphorus pentasulfide, the authors studied the reaction of phosphorus pentasulfide with allyl alcohol in the presence of triethylamine at a molar ratio of reacting components of 1 : 3 : 3 in a medium of absolute ether. It was found that the reaction yields a mixture of triethylamine salts of O-allyltrithio- and O,O-diallyldithiophosphoric acids. The mixture of triethylamine salts obtained in the form of oil was converted into potassium salts by treatment with potassium methylate and separated. Alkylation of potassium O-allyl trithiophosphate with alkyl halides gives neutral esters. It is shown that O-allyl-S,S-dialkyl trithiophosphates are capable of free-radical addition reactions of O,O-dialkyldithiophosphoric acids. IR spectra of the resultant compounds were studied.

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MEL'NIK, YA.I., and ZEMLYANSKIY, N.I., L'vov State University imeni Ivan Franko, Lvov, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Unsaturated Esters of Dithiophosphoric Acid. III. Synthesis of Salts of Unsaturated Dithiophosphoric Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 791-794

Abstract: The authors undertook to synthesize esters of O,O-dialkyldithiophosphoric acids containing a double and triple bond in the alkyl radical, as well as to study some of their properties. For this purpose the reaction of phosphorus pentasulfide with allyl, β-methallyl, crotyl, cinnamyl and propargyl alcohols was staged in a medium of inert solvents. It was found that unsaturated primary alcohols react according to the Pishchimuki scheme to give acid esters of dithiophosphoric acid on heating to 35-40°. The acids were isolated in the form of potassium salts. Aqueous solutions of the potassium salts interact with aqueous solutions of Pb^{2+}, Ag^{+}, Ni^{2+} salts and form water-in-

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MEL'NIK, YA. I., and ZEMLYANSKIY, N. I., Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 791-794

soluble salts of the corresponding metals. IR spectra of the salts were obtained by the Spectral Laboratory of the Chair of Rare Elements, Kiev State University, Professor A. T. PILIPENKO.

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Acc. Nr: AP0049501 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UP0039

99934d Unsaturated esters of dithiophosphoric acid. V. Mixed esters of O,O-dialkyne (alkene) dithiophosphonic acids. Zemlyanskii, N. I.; Mel'nik, Ya. P. (L'vov. Gos. Univ., im. Franko, Lvov, USSR). Zh. Obshch. Khim. 1970, 40(1), 40-5 (Russ). Addn., over 1 hr of 1.94 g HC:CCH$_2$Br to 4 g (HC:CCH$_2$O)$_2$PS$_2$K in Me$_2$CO gave, after several hr at room temp. and 4-6 hr at 35°, 85% (HC:CCH$_2$O)$_2$PS(SCH$_2$C:CH), b$_{0.001}$ 80°, d_4^{20} 1.2212, n_D^{20} 1.5600. Similarly were prepd. the following, all of which required the presence of hydroquinone inhibitor during handling in order that polymn. be prevented: (HC:CCH$_2$O)$_2$PS$_2$R (R shown): CH$_2$:CHCH$_2$, 87%, b$_{0.01}$ 76°, 1.1612, 1.5510; CH$_2$:CMeCH$_2$, 73%, b$_{0.01}$ 79°, 1.1609, 1.5480; PhCH$_2$, 70%, b$_{0.001}$ 110°, 1.2139, 1.5870; Me, 76%, b$_{0.001}$ 58°, 1.2209, 1.5490; Et, 83%, b$_{0.01}$ 61°, 1.1850, 1.5414; Pr, 88%, b$_{0.001}$ 65°, 1.1574, 1.5360; Bu, 75%, b$_{0.001}$ 71°, 1.1382, 1.5312; Am, 82%, b$_{0.001}$ 80°, 1.1167, 1.5262. (HC:CCH$_2$O)$_2$PS$_2$K, used in the reaction, m. 138°. Similarly appropriate K salts and RBr gave (MeCH:CHCH$_2$O)$_2$PS$_2$R (R shown): HC:CCH$_2$ 64%, b$_{0.001}$ 84°, 1.1077, 1.5384; CH$_2$:CHMe, 85%, b$_{0.001}$ 78°, 1.0800, 1.5308; CH$_2$:CMeCH$_2$ 76%, b$_{0.001}$ 82°, 1.0806,

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1.5282; $PhCH_2$, 67%, $b_{0.4mm}$ 108°, 1.1166, 1.5562; Me, 83%, $b_{0.4mm}$ 55°, 1.1048, 1.5280; Et, 89%, $b_{0.4mm}$ 68°, 1.0819, 1.5240; Pr, 78%, $b_{0.4mm}$ 76°, 1.0645, 1.5198. $(MeCH:CHCH_2O)_2PS_2K$, m. 135°, was used. $(EtO)_2P(S)SR^1$ were prepd. similarly (II and R^1 shown resp.): $CH_2:CMeCH_2$, $CH_2:CMeCH$, 84%, $b_{0.4mm}$ 73°, 1.0651, 1.5230; $CH_2:CMeCH_2$, $CH_2:CHCH_2$, 93%, $b_{0.4mm}$ 62°, 1.0787, 1.5257; $CH_2:CMeCH_2$, HC:CCH, 92%, $b_{0.4mm}$ 72°, 1.1067, 1.5321; $CH_2:CMeCH_2$, $PhCH_2$, 86%, $b_{0.4mm}$ 105°, 1.1187, 1.5575; $CH_2:CMeCH_2$, Me (I) 91%, $b_{0.4mm}$ 42°, 1.1008, 1.5224; $CH_2:CMeCH_2$, Et, 94%, $b_{0.4mm}$ 48°, 1.0793, 1.5175; $CH_2:CHCH_2$, $CH_2:CMeCH_2$, 80%, $b_{0.4mm}$ 54°, 1.0975, 1.5302; $CH_2:CHCH_2$, $PhCH_2$, 79%, $b_{0.4mm}$ 95°, 1.1516, 1.5706; $CH_2:CHCH_2$, amyl, 87%, $b_{0.4mm}$ 69°, 1.0595, 1.5118; $CH_2:CHCH_2$, C_6H_{13}, 84%, $b_{0.4mm}$ 80°, 1.0465, 1.5100. $(CH_2:CMeCH_2O)_2PS_2K$ m. 115°. Bromination of $(CH_2:CHCH_2O)_2PS_2Et$ in diffuse light in CCl_4 gave the tetrabromide, 58%, d^{20} 1.9285, n_D^{20} 1.5940; similarly was prepd. the tetrabromide of I, 1.8796, 1.5882, and the dibromide of $(EtO)_2PS_2CH_2CH:CH_2$, 1.6031, 1.5613.

G. M. Kosolapoff

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USSR UDC: 621.391.2

MEL'NIK, Yu. A.

"Some Possibilities of Coherent Processing of Random Signals"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 737-741

Abstract: The author considers the feasibility of extending the methods of space-time processing of signals to the case of reception of radio-thermal emission. In observation of moving objects in the short-range zone, the interferometer has resolution with respect to range and in the direction of motion. An expression is presented for the indeterminacy diagram, and a specific example is given which characterizes the spatial selectivity of the system.

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USSR UDC 522.4:523.164

MEL'NIK, YU. A.,

"Time-Space Processing of Radio Thermal Signals From Radiators Moving in the Near Zone of an Interferometer"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 9, 1972, pp 1376-1380

Abstract: A study was made of the characteristic features of interferometric systems with time-space processing of the signals connected with observing moving radiation sources at distances commensurate with the base dimensions. The system has two-dimensional spatial selectivity which can be characterized by an indeterminancy function. An example of this function is presented for given observation conditions.

In contrast to the known radio astronomical system, the interferometer with coherent time-space processing of signals from emitters observed in the near zone as a two-dimensional system. Just as an ordinary antenna can be focused for observation of a defined point in the near zone, the interferometer can be tuned to receive the radiation from it for smoothing by a defined law. The variation of the trajectory of motion with respect to direction and range implies weakening of the focusing effect. In this sense, the stated problem approaches the holography problem for radiothermal emission using an artificial aperture.

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UDC 621.357.3:669.14(088.8)

MEL'NIKOV, A. A.

"Method of Electrochemical Oxide Coating of Steel Products"

USSR Author's Certificate No 311981, filed 28 Mar 68, published 19 Nov 71 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L313P)

Translation: A procedure has been patented for electrochemical oxide coating of steel products in an electrolyte containing orthophosphoric acid and Mn peroxide. The procedure is distinguished by the fact that in order to improve the quality of the oxide film on the products made of chromium steel, H_2SO_4 and CrO_3 are introduced into the electrolyte and the process takes place at a temperature of 80-130°; D_c is 0.10-0.15 a/dm^2. The electrolyte contains the following: H_2SO_4 (specific weight 1.84), cm^3 300-330, orthophosphoric acid cm^3 500-600, Mn peroxide, g 2-5, CrO_3, g 5-10. The process of electrochemical oxide coating takes place in 1-8 minutes, depending on the solution temperature and D_c. A bright or dull velvet oxide film up to 10 μ thick is obtained by the proposed procedure on products made of chromium steel, for example, 2Kh13, 3Kh14, 4Kh13.

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USSR UDC: 8.74

MEL'NIKOV, A. A.

"Investigation of a Binary Divider for Performing Arithmetic Operations"

Avtomatika i vychisl. tekhn., 1972, No 6, pp 73-76 (from RZh--Kibernetika, No 5, May 73, abstract No 5V746 by the author)

Translation: Devices are described for performing arithmetic operations; the devices are constructed on the basis of controllable frequency dividers (binary dividers). When converters which change positional codes to pulse-number codes are used, such devices can be employed to perform arithmetic operations such as addition, subtraction, multiplication and division. This article describes devices for doing these operations and also for squaring, taking a root, finding the logarithm and computing the exponential function. The binary divider can be used as a basis in synthesizing multipliers and dividers for quantities represented by frequency modulated signals. One of the versions of a device of this kind is given.

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USSR

UDC 621.3.083.8

MEL'NIKOV, A. A., RYZHEVSKIY, A. G., TRIFONOV, YE. F., SHLYANDIN, V. M., Penza

"Some Means of Constructing High-Speed Frequency-to-Code Converters with Simulation of the Inverse Function"

Novosibirsk, Avtometriya, No 2, 1972, pp 40-46

Abstract: A study was made of possible means of implementing the structures of high speed analog-to-digital frequency converters with simulation of the inverse function. The basic problem in implementing the investigated converters is development of the functional generator which in connection with its purpose is called a square-law function generator. The construction of the square law function generator from binary multipliers and binary dividers is discussed in detail. Inasmuch as the conversion result in the discussed devices is proportional to the frequency of the investigated signal and the conversion time is equal to one period of the signal, they are characterized by the properties of both digital frequency meters and period meters. Their advantages include limiting high speed characteristic of the meters and proportionality of the results of the conversion to the frequency of the investigated signal characteristic of frequency meters. The disadvantages include the presence of errors in shaping the time interval characteristic of period meters and an increase in the relative conversion error at the beginning of the range characteristic of frequency meters. The introduction of a conversion digitalization

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MEL'NIKOV, A. A., et al., Avtometriya, No 2, 1972, pp 40-46

switch in the described devices permits the counter to contain the code result proportional to the frequency of the investigated signal with an error not exceeding the given error for the time of 1 period of the investigated signal. A model frequency to code converter was developed for the frequency range from 1 to 1,024 hertz. An error on the order of $\pm$0.2% was obtained in the indicated frequency range.

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USSR

UDC 621.3.035.4

SELIVERSTOV, V. P., MEL'NIKOV, A. M., TROFIMENKO, M. I., and KUNIN, T. I., (DECEASED)

"On the Question of Constructing Chlorous-Cupri-Magnesium Current Sources"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 15, No 11, 1972, pp 1754-1756

Abstract: It is well known that the use of magnesium current sources with cathodes coated with CuCl is limited by their long period of activation and by not allowing high current densities. This work attempts to improve the characteristics of sources by changing their structure. The negative electrode was made of a magnesium alloy (MA-8), CuCl consisted of not less than 95% of the basic component. In the new current source the perforation of the conductor was increased for coated electrodes, and the position of the electrode in the model was reversed. The period of activation is reduced only to the time needed for the impregnation of the diaphragm. Cathode potential has a sufficiently positive value, and the elements are characterized by a high and stable tension/strain. A/h capacity increases by 18-20%. One condition or the attainment of these favorable electric characteristics is the exclusion of conductive

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SELIVERSTOV, V. P., et al., Khimiya I khimicheskaya Tekhnologiya., Vol 15, No 11, 1972, pp 1754-1756

impurities from the active material. This variant of current sources allows a further improvement in the technological process of preparing current sources with Cu(i) chloride and significantly broadens the sphere of their use.

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UDC 541.13+541.515+542.941+661.718.1

USSR

IL'YASOV, A. V., KARGIN, Yu. M., LEVIN, Ya. A., MORDZOVA, I. D., MEL'NIKOV, B. V., VARINA, A. A., SOTNIKOVA, N. N., and GALEYEV, V. S., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Acad. of Sciences

"Electrochemically Generated Free Radicals, 6. The Reduction Mechanism of Certain Organophosphorus Compounds, and the Electron Paramagnetic Resonance Spectra of the Anion Radicals Formed"

Moscow, Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya, No 4, 71, pp 770-776

Abstract: A series of organophosphorus compounds was studied in connection with their electrochemical reduction, using several methods. The electron paramagnetic method was applied in the case of electrochemically generated anion radicals of triphenylphosphine, its oxides, and the diethyl ester of β-styrylphosphosphonic acid.

Graphical data accompanying the paper include classical and commutated polarograms for the various compounds, and electron paramagnetic spectra for free radicals; numerical electrochemical data are given for nine organophosphorus compounds tested.

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USSR UDC: 621.317.3(088.8)

TARASOV, V. F., MEL'NIKOV, A. A.

"A Device for Measuring the Difference Between the Periods of Two Electric Signals"

USSR Author's Certificate No 257547, filed 24 Jun 68, published 11 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A285 P)

Translation: This Author's Certificate introduces a device for measuring the difference between the periods of two electric signals. The device contains pulse shapers, counters of the number of periods of the input and reference frequencies, pulse-potential diodes, decoders of the zero state of the counters of the number of periods of the input signal, flip-flops, coincidence stages, inverters, a collector circuit and sign indicators. As a distinguishing feature of the patent, measurement precision is improved by including a reversible counter in the device. The method of connection of the counter is explained in detail in the patent description. E. L.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR UDC 621.3.032.21

SELIVERSTOV, V. P., MELNIKOV, A. M., PLYUSHKOVA, V. S., TIKHOMIROVA, A. N., KUNIN, T. I. (Deceased), Department of Electrochemical Production Processes, Ivanovo Institute of Chemical Technology

"Fabrication of Brush-on-Type and Molded Copper Chloride Cathodes for Magnesium Power Sources"

Ivanovo, Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, Vol 14, No 11, 1971, pp 1705-1708

Abstract: A new technique described is for making copper chloride-base active mass for brush-on-type positive electrodes designed for use in magnesium power sources as well as a method of fabricating molded porous copper-chloride cathodes based on the reduction of $CuCl_2 \cdot 2H_2O$ with a highly disperse dry copper powder. The experimental data indicate that the presence of chemical pure excess copper powder acts favorably on the efficiency of power sources. The cell voltage is increased by 15-50 mv and the activation period is decreased. The factors responsible for the 1/2

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SELIVERSTOV, V. P., et al, Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, Vol 14, No 11, 1971, pp 1705-1708

improved cell characteristics, other than the higher conductivity of the active mass, is the much higher dispersion of the copper chloride produced by the dry method. The latter aspect is the basis for making of molded positive porous electrodes. The porosity of the finished electrodes is rated at 55.4 percent against 35.7 percent in factory-made molded electrodes with graphite. The load potential is about the same in both; the cell voltage, however, is considerably higher and more stable with time. The efficiency of copper chloride is 95 percent. The effective utilization of the anodic material is increased by 9 percent. The pickup w/hr capacity at discharge to 1.2 v is increased by 20 percent. A contributing factor is the lower solubility of copper chloride on the electrode in the presence of higher porosity as well as the higher concentration of chloride ions in the electrolyte causing anode activation.

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1/3 030 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--STUDY OF THE KINETICS OF PHOTOCONDUCTIVITY OF GERMANIUM UNDER THE CONDITIONS OF CYCLOTRON RESONANCE -U-

AUTHOR-(03)-GERSHENZON, YE.M., MELNIKOV, A.P., SHIMICHEVA, E.L.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, FIZIKA I TEHNIKA POLUPROVODNIKOV, VOL 4, NO 5, 1970, PP 892-899

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DOCUMENT CLASS--UNCLASSIFIED

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UNCLASSIFIED PROCESSING DATE--04DEC70

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CIRC ACCESSION NO--AP0140112

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE CONTAINS RESULTS OF INVESTIGATING THE KINETICS OF PHOTOCONDUCTIVITY OF GE UNDER THE CONDITIONS OF CYCLOTRON RESONANCE AT A FREQUENCY OF 10 PRIME10 HERTZ FOR HELIUM TEMPERATURES. A PROCEDURE IS PROPOSED FOR INVESTIGATING THE NOEQUILIBRIUM PROCESSES IN SEMICONDUCTORS SEPARATELY FOR ELECTRONS AND HOLES. THE PHTOCONDUCTIVITY RELAXATION TIME TAU REL OF ELECTRONS AND HOLES IN PURE GE IS STUDIED AS A FUNCTION OF TEMPERATURE AND LIGHT INTENSITY OF THE EXCITING CARRIER. IT IS DEMONSTRATED THAT BOTH IN P TYPE AND IN N TYPE GERMANIUM, RECOMBINATION TAKES PLACE ON THE DEEP CENTERS. THE ELECTRONS ARE CAPTURED BY NEUTRAL CENTERS, AND THE HOLES, BY IONIZED CENTERS. THE PHOTOCONDUCTIVITY RELAXATION TIME IS DETERMINED BY THE VARIATION IN FILLING OF THE SHALLOW CENTERS DURING THE DARK INTERVAL BETWEEN THE LIGHT PULSES. THE CALCULATION CORRESPONDING TO THIS MODEL IS CARRIED OUT FOR THE ELECTRON PHOTO CONDUCTIVITY PULSE. THE CALCULATED TEMPERATURE RELATIONS OF TAU REL ARE ANALOGOUS TO THE RELATIONS OBSERVED IN THE EXPERIMENT. IT IS POINTED OUT THAT THE NATURE OF EFFECT OF THE INTENSITY OF CONSTANT ILLUMINATION ON THE FORM OF THE CYCLOTRON RESONANCE SPECTRUM MAKES IT POSSIBLE TO PROPOSE THE SIMPLEST SINGLE LEVEL RECOMBINATION SCHEME FOR NONEQUILIBRIUM CARRIERS IN PURE GE. THE RECOMBINATION OF FREE ELECTRONS AND HOLES PROCEEDS VIA THE DEEP CENTERS CORRESPONDING TO THE UNCONTROLLED ADMIXTURE. WITHIN THE FRAMEWORK OF THE ADOPTED MODEL IT IS ALSO POSSIBLE TO EXPLAIN THE PROTRACTION OF THE PHOTOCONDUCTIVITY FALLOFF TIME FOR HOLES IN THE P TYPE SAMPLES.

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CIRC ACCESSION NO--AP0140112

ABSTRACT/EXTRACT--THE STATIONARY STATE OF THE ILLUMINATED SAMPLE CORRESPONDS TO A LARGER NUMBER OF RECOMBINATION CENTERS FOR HOLES THAN IN THE DARK. PROTRACTION OF THE PHOTO CONDUCTIVITY PULSE FALLOFF TIME IS CONNECTED WITH CHARGE EXCHANGE OF THE RECOMBINATION CENTERS BY HOLES RELEASED FROM THE SHALLOW ACCEPTORS.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 621.315.592

GERSHENZON, Ye.M., MEL'NIKOV, A.P., SHIMICHEVA, E.L.

"Study of the Kinetics of Photoconductivity of Germanium under the Conditions of Cyclotron Resonance"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 892-899

Abstract: This article contains results of investigating the kinetics of photoconductivity of Ge under the conditions of cyclotron resonance at a frequency of 10^{10} Hertz for helium temperatures. A procedure is proposed for investigating the nonequilibrium processes in semiconductors separately for electrons and holes. The photoconductivity relaxation time τ_{rel} of electrons and holes in pure Ge is studied as a function of temperature and light intensity of the exciting carrier. It is demonstrated that both in p-type and in n-type germanium, recombination takes place on the deep centers. The electrons are captured by neutral centers, and the holes, by ionized centers. The photoconductivity relaxation time is determined by the variation in filling of the shallow centers during the dark interval between the light pulses. The calculation corresponding to this model is carried out for the electron photoconductivity pulse. The calculated temperature relations of τ_{rel} are analogous to the relations observed in the experiment.

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USSR

GERSHENZON, Ye.M., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 892-899

It is pointed out that the nature of effect of the intensity of constant illumination on the form of the cyclotron resonance spectrum makes it possible to propose the simplest single-level recombination scheme for nonequilibrium carriers in pure Ge. The recombination of free electrons and holes proceeds via the deep centers corresponding to the uncontrolled admixture. Within the framework of the adopted model it is also possible to explain the protraction of the photoconductivity falloff time for holes in the p-type samples. The stationary state of the illuminated sample corresponds to a larger number of recombination centers for holes than in the dark. Protraction of the photoconductivity pulse falloff time is connected with charge exchange of the recombination centers by holes released from the shallow acceptors.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

1/2 027 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--REACTIONS OF BIS(TRIFLUOROMETHYL) NITROXIDE. VI. POLYMERIZATION OF TETRAFLUOROETHYLENE IN THE PRESENCE OF AN INITIATOR, SUCH AS

AUTHOR-(04)-MELNNIKOV, A.V., BARANAYEV, M.K., MAKAROV, S.P., ENGLIN, M.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(1) 117-18

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYTETRAFLUOROETHYLENE, POLYMERIZATION, NITROGEN OXIDE, CHEMICAL REACTION MECHANISM, ORGANIC NITRO COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1413 STEP NO--UR/0063/70/015/001/0117/0118

CIRC ACCESSION NO--AP0112407
UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

2/2 027 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112407

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYMN. OF C SUB2 F SUB4 WAS INITIATED BY 1-30PERCENT (OF SUB3) SUB2 NO (I) AT 240-50DEGREES TO GIVE A SOLID POLYMER (WHEN I CONCN. WAS 1-3PERCENT) OF MOL. WT. 2 TIMES 10 PRIME4. A REACTION MECHANISM WAS PROPOSED. THE PROPAGATION RATE CONST. WAS SIMILAR TO 25.5 L.-MOLE MIN AND THE TERMINATION RATE CONST. WAS SIMILAR TO 3,000.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC: 621.039.566.6

SARKISOV, A. A., PUCHKOV, V. N., and MEL'NIKOV, B. A.

"Choice of Efficiency of Absorption Rods for Protection from Excessive Power Levels"

Moscow, Atomnaya energiya, No 6, 1973, pp 441-444

Abstract: The usual method of protection against excessive power levels in a reactor is the use of absorption rods to switch off the reactor at a danger signal. In this connection, experiments were undertaken, using the IR-100 reactor and an electronic model of reactor kinetics realized by the MN-14 analog computer, to resolve the problem of determining the minimum efficiency of absorbing rods for protecting the reactor in cases of disturbances in the reaction procedures when all the rods are simultaneously activated to halt those disturbances. A brief description of the experiments is given. They yielded a family of curves determining the change in relative power of the reactor as a function of the speed and time of the reactivity disengagement. Comparison of these curves indicated that for low disengagement speeds, the reactivity corresponding to a given relative power level depends primarily on the speed of disengagement. Other reactivity curves are plotted.
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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

UDC 68:66.012

USSR

GOLOVANOV, O. V., Candidate of Technical Sciences, MEL'NIKOV, B. N., Candidate of Technical Sciences, SHAPIRO, Yu. Z., Candidate of Technical Sciences, Central Scientific Research Institute of Large-Scale Automation

"A Practical Method of Controlling a Large Plant"

Moscow, Pribory i Sistemy Upravleniya, No 11, Nov 72, pp 1-3

Abstract: Relatively simple control algorithms which can be realized by present computer technology must be used for successful introduction of systems to control complex production combines. One of the ways to introduce such automated control systems consists in a two-stage solution of the control problems: first, measures are carried out to limit the field of variation and the number of variables (isolation of sets and assignment of intervals), and then more "refined" control is implemented (optimization). The appropriate models of the plant are utilized on each stage. The authors present two methods to this approach as applied to control of a large-scale ammonia plant. A simplified flow chart is used in which the plant is represented as several series-parallel units connected by technological flows. In the first method the target function is taken as the technological component of plant expenditures for making a ton of ammonia. The second method involves accounting for production structure by analyzing the state of the principal technological equipment.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

UDC 533.652/.661.013

USSR

VALEYEV, K. G., MEL'NIKOV, B. N., TOKAREV, V. I., and SHMAKOV, I. P.

"Method of Determining the Optimal Takeoff Envelope of an Aircraft With Minimum Localized Noise"

Samolestostr. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Aircraft Construction and the Technical Air Fleet, Republic Interdepartmental Scientific-Technical Collection), Vypusk (Issue) 21, 1970, pp 27-31 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B353, by G. S. Aronin)

Translation: A solution to a system of equations of aircraft motion in the vertical plane at takeoff forming a noise criterion at a minimum is derived. The surface density of acoustic energy swept along during the takeoff period at a given point at a location lying in the plane of the takeoff trajectory is adapted as the noise criterion. The problem is solved by a method based on a study of the first variation of a functional characterizing the noise criterion adopted. The angle of attack and the thrust are chosen as the control functions. Results of calculations of the takeoff trajectory, optimal in the sense described above, of an aircraft with characteristics similar to the Tu-124 are presented. The angle of attack

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USSR

VALEYEV, K. G., et al., Samolestostro. i tekhn.. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Aircraft Construction and the Technical Air Fleet, Republic Interdepartmental Scientific-Technical Collection), Vypusk (Issue) 21, 1970, pp 27-31 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B353, by G. S. Aronin)

bounded from below and from above was chosen as the control parameter. Based on analysis of the calculations, it was noted that to reduce the flight noise the aircraft velocity in approaching the listening point must be increased. This method of piloting can prove very effective for aircraft with high thrust-to-load ratios.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 022

TITLE--STATE OF ORGANOSILICON COMPOUNDS ON CELLULOSE FIBERS -U-

AUTHOR-(03)-GUBINA, S.M., SOLOVYEV, A.A., MELNIKOV, B.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 252-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ORGANOSILICON COMPOUND, CELLULOSE RESIN, IR SPECTRUM, NATURAL FIBER, UREA FORMALDEHYDE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0153/70/013/002/0252/0255

PROXY REEL/FRAME--3005/0182

CIRC ACCESSION NO--AT0132459

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

2/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0132459

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF COTTON (I) CLOTH AND I CONTG. CARBAMOL (UREA HCHO RESIN) (II); (HESIERD) SUAN (III), OR II AND III SHOWED THAT II REACTS WITH III, GIVING IV DURING THE FINISHING OPERATION. THERE IS ALSO H BONDING BETWEEN II AND III.

FACILITY: IVANOV. KHIM.-TEKHNOL. INST., IVANOVO, USSR.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ABSORPTION OF AMMONIA FROM UREA PRODUCTION WASTE GASES -U-

AUTHOR-(05)-STRIZHE/SKIY, I.I., ZAKAZNOV, V.F., LEBEDEV, V.V., SIDORIN, I.YU., MELNIKOV, B.P.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,102

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--26JAN70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AMMONIA, UREA PRODUCTION, GAS ABSORPTION, FLAME EXTINCTION, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1743 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136984

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

2/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136984

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NH SUB3 IS ADSORBED FROM WASTE GASES CONTG. A COMBUSTIBLE H-O MIXT. BY WASHING OFF NH SUB3 UNDER PRESSURE IN AN ABSORBER WITH SIMULTANEOUS NEUTRALIZATION OF THE REMAINING DANGEROUSLY EXPLOSIVE MIXT. NEUTRALIZATION IS CARRIED OUT BY FILLING THE ENTIRE VOL. OF THE ABSORBER WITH A GRANULATED FILLING WITH DIMENSIONS OF FLAME EXTINGUISHING CANALS THAT SIGNIFICANTLY INCREASE THE CRIT. DIAMS. OF FLAME EXTINGUISHING IN CONCRETE CONDITIONS. A RASCHIG RING WITH DIAM. SMALLER THAN OR EQUAL TO 10 MM UNDER INITIAL ATM. PRESSURE IN THE ABSORBER OR A CORUNDUM FRACTION OF 1-2 MM UNDER AN INITIAL PRESSURE OF SMALLER THAN OR EQUAL TO 18 ATM IN THE ABSORBER IS USED AS THE GRANULATED FILLING. FACILITY: STATE SCIENTIFIC RESEARCH AND DESIGN INSTITUTE OF THE NITROGEN INDUSTRY.

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AA0040714 MELNIKOV BP UR 0482 1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

240702 UREA PRODUCTION from NH_3 & CO_2, using converted natural gas as CO_2 source, and as H_2 source for NH_3 synthesis, is intensified and energy losses reduced, by total or partial injection of the converted natural gas feed at 30 kg/cm^2 with ammonium carbonate solution and liquid ammonia at 600-1000 kg/cm^2 to absorb CO_2 from the feed. Part of the converted natural gas is compressed and introduced at the base of the urea synthesis tower, at a temp. higher than the temp. of synthesis, and assists concentration of the urea melt.
6.7.67. as 1171649/23-26, GORLOVSKII, D.M. et al.
(12.8.69) Bul. 13/1.4.69. Class 12o, Int. Cl.
C 07c.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

AA0040714

AUTHORS: Gorlovskiy, D. M.; Kucheryavyy, V. I.; Lebedev, V. V.; Al'tshuler, L. N.; Levenkova, N. I.; Mel'nikov, B. P.; and Gamenyuk, [illegible]

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 541.13:541.515:543.422.27

IL'YASOV, A. V., KARGIN, YU. M., MOROZOVA, I. D., CHERNOKAL'SKIY, B. D., VAFINA, A. A., EL'NIKOV, B. V., GEL'FOND, A. S., MUKHTAROV, A. SH., and GALYAMETDINOV, YU. G., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR, and Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Electrochemically Generated Free Radicals. 9 Communication. Reduction of Some Nitrophenylarsine Derivatives and EPR Spectra of Their Anion Radicals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72, pp 2174-2178

Abstract: The mechanism of polarographic reduction of nitrophenyldiethylarsines and their oxides and sulfides in an aprotic medium was studied. These compounds exhibit two reduction waves, the first one corresponding to a one-electron wave, the process being reversible. The second wave is typical of a 3e-process. A diagram for the sequential chemical processes of these compounds after the capture of second electron has been proposed. Both waves represent a stepwise oxidation of the unstable dianion of the substituted nitrobenzene; the phenyl ring -- arsenic system remains untouched in this process. Novel organoarsine anion radicals have been obtained by electrochemical reduction and studied by the EPR method. Delocalization of the unpaired electron in these anion

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

IL'YASOV, A. V., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72, pp 2174-2178

radicals has been investigated analyzing possible reasons for a considerable decrease of the spin density on the arsenic atom during the transition from tetracoordinated arsenic atom of the anion radicals to a tri-coordinated one.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

Free Radicals

USSR

UDC 541.138+541.515

IL'YASOV, A. V., KARGIN, Yu. M., LEVIN, Ya. A., and MEL'NIKOV, B. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences of the USSR

"Electrochemically Generated Free Radicals. Report 5. Activation Energy of the Current-Determining Process and Subsequent Chemical Reactions"

Moscow, IAN SSSR, Seriya Khimicheskaya, No 9, Sep 70, pp 1,979-1,983

Abstract: A method is proposed for studying the mechanism of an electrochemical process and for a quantitative evaluation of kinetic parameters of the initiated or subsequent chemical reaction by measuring the activation energy of the limiting current in polarography and commutator polarography. Analysis of various special cases for both cathode and anode processes shows that secondary paramagnetic products must be taken into account in interpreting the electron paramagnetic spectra of electrochemically generated anion radicals. The method proposed in this paper was used to study the mechanism of reduction and generation of anion radicals of a number of organophosphorus and carbonyl compounds. The results are to be published in subsequent reports.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 621.396.932.1

GOLOVIN, V. M., MEL'NIKOV, E. A., SHUKHMIN, L. N.

"Effect of the Earth's Magnetic Field on the Errors of Radio Navigational Angle Meters with Ferrite Antennas"

Tr. aspirantov Fiz.-tekhn. fak. Voronezh. politekhn. in-t (Works of the Post-graduates of the Physical-Technical Department of Voronezh Polytechnic Institute), 1971, vyp. 2, pp 169-172 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5G73)

Translation: The maximum error in determining the arrival angle in radio navigational angle meters caused by variation of the magnetic permeability of the core material of the antenna under the effect of the Earth's magnetic field is estimated. It is demonstrated that this error has a sufficiently large magnitude and requires compensation. There is 1 illustration and 1 table.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

Food Technology

UDC 597.0/5-14

USSR

ANTSYSHKINA, L. M., KIRILENKO, N. S., RYABOV, F. P., and MEL'NIKOV, G. B., Dnepropetrovsk State University

"Dynamics of the Relative Size and Weight of the Viscera in Tilapia nossambica Peters Fed Chlorella"

Moscow, Voprosy Ikhtiologii, No 2, 1971, pp 345-348

Abstract: In 10-month aquarium experiments, Tilapia mossambica Peters was given granulated food containing different percentages of Chlorella and other organisms (Daphnia, yeasts) or nongranulated food not containing Chlorella. The fishes given Chlorella-containing granulated food exhibited greater weight gains and linear growth than did the fishes fed nongranulated food not containing Chlorella, and the physiological changes in the former were fewer than in the latter. Moreover, the food with a high Chlorella content (granules containing 70 to 100% agla) had less effect on the relative size and weight of the liver, gallbladder, spleen, heart gonads, etc. than did food with a low (30%) Chlorella content, nongranulated food, or food not containing Chlorella.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 621.357:621.79.027(088.8)

KOTEL'NIKOV, A. I., DAMASKIN, Yu. I., MEL'NIKOV, G. I.

"Method of Electrochemical Dimensional Working"

USSR Author's Certificate No 295642, Filed 8/05/69, Published 7/04/71, (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 L256 P by A. D. Davydov).

Translation: The method of electrochemical dimensional working suggested differs in that in order to eliminate the influence of the voltage drop over the length of the part (P) on processing accuracy, the process is conducted by a cathode tool corresponding in its dimensions to the P being worked and made of a material with the same specific resistance, and the current is fed to the P and cathode so that an increase in voltage drop along the length of the cathode corresponds to an even decrease in voltage drop along the length of the P. For example, when the poles of the power supply are connected to the opposite ends of the cathode tool and the P, forming a plane-parallel clearance, the voltage between the P and the cathode is identical over its entire length.

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USSR UDC 621.318.4--181.4.029.62.075

MEL'NIKOV, G. M.

"Tuning Methods for Flat Wire Spirals of Miniature Inductances"

Kiev, Izvestiya VUZ--Radioelektronika, vol. 14, No. 7, 1971, pp 834-836

Abstract: Several methods are described in this brief communication for changing the inductance of these miniature spiral inductances, made of hybrid film systems and operating in the frequency range of 10-300 MHz. The first is to change the distance between the centers or between the planes of the mutually superimposed and series-connected coil sections; the second is to change the distance between the centers or between the planes of the coil and the ferromagnetic disc in this second type of construction; and the third is to change the position of a cylindrical ferromagnetic core inside the coil in still a third construction. These methods and their characteristics are analyzed.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 621.396.6-181.5

D'YACHKOV, V. I., KOROBEYNIKOV, P. V., MEL'NIKOV, G. N.

"High-Frequency Parameters of LC Components and Conductors in Hybrid Film Microcircuits"

Kiev, Izvestiya VUZ -- Radioelektronika, No 5, 1970, pp 596-600

Abstract: The film microcircuits are combinations of capacitors, coils and conductors. Tests were made at frequencies of 10-120 MHz. The capacitors have a silicon monoxide dielectric and aluminum plates, and range in capacitance from 15 to 3000 pf. Tunable "matrix" capacitors varied from 6 to 60 pf. Repeated measurements of the Q of this type of capacitor showed that it is practically independent of a capacitance change of 5 to 10 thousand pf/cm^2. However, the film capacitor Q is in general a function of its capacitance and the signal frequency. The following formula, obtained by generalizing the results of many measurements, is found for the Q of a film capacitor with a capacitance of 50 to 1000 pf and a silicon monoxide dielectric:

$$Q \approx 1.2 \times 10^5/fC,$$

where f is the operating frequency in MHz and C is the capacitance in pf. In microcircuits operating at high frequencies, the stray inductances of film and wire conductors have an important effect and must be taken into

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

D'YACHKOV, V. I., et al., Izvestiya VUZ -- Radioelektronika, No 5, 1970, pp 596-600

account beginning with frequencies of the order of 60 MHz. It is found also that the optimal inside diameter of wire spiral inductances and cores in such circuits for tuning in the 10-150 MHz range varies from 4 to 6 mm. Curves are presented for the variations of capacitance and inductance as functions of different variables, and tables of the parameters of various metals used as conductors in the microcircuits are given. Formulas for the inductance of film conductors are also developed.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 59(093.32) : 591.9(265)

BEKKER, V. E., ZEZINA, O. N., LEVENSHTEYN, R. Ya., and MEL'NIKOV, I. A.,
Institute of Oceanology, Academy of Sciences, USSR

"Zoological Studies During the 48th Voyage of the Scientific Research Ship Vityaz in the Central Part of the Pacific Ocean"

Moscow, Zoologicheskiy Zhurnal, Vol 50, No 6, Jun 71, pp 955-957

Abstract: A study was made of oceanic and ocean floor fauna of the Pacific Ocean over the Milwaukee banks, at Fiji, Tonga, Rarotonga, Auckland, Curtis Island, Penryn Atoll, and Honolulu. Two hundred and ten takes yielded 115 species belonging to 74 genera and 46 families, including some very rare specimens. Data were obtained on fishing grounds for blue fin and Pterolamiops longimanus sharks. Most numerous in the collections were flying fish of the Exocoetidae family and phosphorescent anchovies of the Myctophidae family (including the Diaphus regani caught at 18°1' southern latitude and 176°43' eastern longitude, which had previously been classified among the west-equatorial species). Hatchlings and fingerlings of Exocoetus sp., Hirundichthys, and others were encountered on the surface of the water only during daytime, with fewer of their longer specimens caught during daytime, and still

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

BEKKER, V. E., et al., Zoologicheskiy Zhurnal, Vol 50, No 6, Jun 71, pp 955-957

larger ones -- only at night. The greatest abundance of fingerlings was found in the regions where the northern and southern tropical currents meet, and the poorest catches were in equatorial waters. Sea bottom investigations in the low-productivity oligotrophic areas of the Pacific Ocean confirmed the general sparseness of fauna, with a predominance of Foraminifera, small glass sponges, Scyphozoa, and Serpulidae. A general similarity of the fauna of the Tonga and Kermadek trough was revealed, with several live species found in the Tonga basin for the first time. Biochemical investigations and quantitative analyses of easily assimilated organic substance of the superficial layer of deep-water sediment were also done.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020001-2

USSR

UDC 632.95

MEL'NIKOV, I. A., MEL'NIKOV, N. N., and BASKAKOV, YU. A.

"A Method of Preparing 2-Benzyloxy-4-N-alkylhydroxyl-amino-6-alkylamino-s-triazines"

USSR Authors' Certificate No 250148, filed 3 Nov 67, published 23 Jan 70 (from Referativnyy Zhurnal Khimiya, No 17 10 Sept 70, Abstract No 17 N655 P)

Translation: Physiologically active 2-CCH_2Ph-4-N(R)(OH)-6-NHR'-sym-triazines (I) (R = C_1 - C_3-alkyl; R' = C_1 -C_5-alkyl) are prepared by condensing 2-Cl-4-$PhCH_2O$-6-R'NH-sym-triazines (II) with an excess of N-alkylhydroxylamine. For example 5,2 chlorine hydrate. NeNHOH is 5 ml water at a temperature from -10 to -5°C is neutralized in a stream of N_2 by a solution of 5.2 gm $NaHCO_3$ in 10 ml water. A solution of 8.7 gm of compound II (R' = iso-Pr, melting point 64-5°C) in 20 ml dioxane, and 5.2 gm $NaHCO_3$ in 30 ml water are added simultaneously to the mixture for 7-10 min at 5-10°C. The pH of the mixture is approximately 8 after the addition. The mixture is agitated for 2 hr at 55-60°C and for 1 hr 60°C in a stream of N_2. The mixture is cooled, supplemented by water to the extent of 1/2 its volume, acidified to pH 7 by HCl (acid) or AcOH, saturated with NaCl subjected to ethyl ether extraction (3 x 35 ml), the organic layer is dried with $MgSO_4$ and evaporated, 2 gm of the viscous residue is dissolved in 8 ml of warm EtOH and cooled to 20°C, 20 ml of water is added

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NEL'NIKOV, I. A., et al., USSR Authors' Certificate No 250148

followed by a 10% solution of NaOH in water until the residue dissolves, the solution is acidified with AcOH to pH 7, the residue is filtered, washed with water, dried on P_2O_5, NaOH, with isolation of 1 gm of compound I (R = Me, R' = iso-Pr), yield 50%, melting point 57-9°C. By an analogous procedure compound I (R = Et, R' = iso-Pr) is prepared with a yield of 70% and a melting point of 120-1°/0.1.

I. A. Nel'nikova.

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MEL'NIKOV, I.L.

JPRS 6960
6 Feb 61

SOV/

Article by Yu. A. Bolkhovityanov, G. I. Mel'nikov, I. L. Mel'nikov, [illegible]

Abstract: [illegible]

[illegible]

A study was made of various methods of growing thin films up to 2.5 microns thick by the method of steady epitaxy. Films of gallium arsenide were obtained by brief submersion of the substrates in a weakly supersaturated solution of gallium arsenide in gallium or tin.

The electrophysical properties of the films grown from the solutions in tin did not differ in practice from those of the initial material. The electron mobility was 4,000 cm²/v sec, and their concentration was 10¹⁸ cm⁻³. For films manufactured by epitaxy from solution in gallium, worsening of the properties was observed with a decrease in thickness:

h, microns	n₂₉₃° K	μ₂₉₃° K	n, cm⁻³
6	4500	16000	1.3·10¹⁵
0.7	4350	14000	3.1·10¹⁸
0.1	2700	2200	1.1·10¹⁹

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MEL'NIKOV, L., Scientific Associate, Institute of Medical and Biological Problems, USSR Ministry of Health

"Music and Medicine"

Moscow, Vechernyaya Moskva, 16 Jul 70, p 2

Translation: There exists an enormous disproportion between the place that music occupies in the life of modern man and the insignificant knowledge of the psychophysiology of music, of the effect of music on the human organism. For a long time this question has been given no attention, although music began at the dawn of human history, and from that time on has continuously accompanied man at work and at home. In recent times, the field of the psychophysiology of music has been enriched by new data from Soviet scientists. This research affords the basic material necessary to elaborate the "general physiology of music," to use music to stimulate the capacity for work, and in therapy. An important indicator of the body's vital activity is the condition of the cardiovascular system. As the experiments carried out by Candidate of Medical Sciences V. Polyakova have shown, different musical tempi, timbres, harmony or disharmony have a different effect on cardiac activity. For example, a fast tempo (a stage presentation by Yuriy Nikulin was studied) increased the frequency of heart contractions, in comparison with the initial rate, by 4.7 beats per minute. A slow beat produced almost no change. Investigating the effects of harmonic and disharmonic (i.e. emotional)

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MEL'NIKOV, L., Vechernyaya Moskva, 16 Jul 70, p 2

music brought interesting results. It appeared that Bruckner's Ninth Symphony has a negative effect on the cardiovascular system, comparable to noise, while Bach's Third Brandenburg Concerto has a positive effect. Research done by another Soviet scientist, Candidate of Medical Sciences I. Tonkin, showed that different types of music have an opposite effect on the autonomic and somatic functions. In the first series of experiments, music in a major key with a fast tempo was played, and in the second series -- minor-key music in a slow tempo. The type of music had a distinct effect on the psychological indices of sportsmen. In the first series of experiments, pulse frequency, arterial pressure, and muscle tone increased, the skin temperature of the forearms rose, and thelatent period of hand motion decreased. In the second series of experiments, the results were the opposite. Specially selected music increases the work capacity of muscles. In addition, the worker's pace of movement changes in accordance with the tempo of the music. Music dictates, as it were, a correct and fast rhythm of motions. Another series of experiments conducted with students showed that under the influence of music of various kinds, not only work capacity changed but also the nature of restoration of circulation, of pulse and blood pressure. Work capacity was the greatest in those cases when gay music was used. Restoration of Pulse frequency and blood pressure occurred faster to the sound of music. If the physical load was accompanied by gay music, and the restoration occurred to melancholic music, the indicators were the lowest; and conversely, when the load was applied to

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MEL'NIKOV, L., Vechernyaya Moskva, 16 Jul 70, p 2

melancholy music with restoration to gay music, the indicators were the highest. The effect of music was investigated not only on healthy people. The use of psychotherapy with music in complex sanatorial treatment significantly improved the condition of patients suffering from neuroses and neurosis-like conditions accompanied by disturbed sleep. After two-three sessions of group hypnosis -- relaxation to a specially selected melody -- sleep was restored in 45 percent of the patients, and by the end of the treatment, in 75-80 percent of the patients. Music therapy is practiced in the central Baku "Zone of Health," a new type of health facility. Here, under the supervision of Honored Scientist Professor Sh. Gasanov, the effect of music as a supplementary therapeutic means is studied. Musicetherapy is conducted in the form of individual music sessions, which are combined with a motion regimen. Musical compositions are selected in accordance with the age, taste, and musical background of the patient, depending on the nature of the ailment, the patient's general condition, and the type of nervous system. Music therapy gave the best results in treating hypertonia, hypotonia, and functional disorders of the nervous system. A special kind of musical "pharmacology" has been worked out at one of the Leningrad psychoneurological dispensaries. Here music therapy plays an important role in the general scheme of other therapeutic measures. Experience has shown the beneficial effects of music in a minor key on depressive patients; sometimes this music is the only means of establishing musical contact with the patients.

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Acc. Nr: AP0054291 Ref. Code: UR9115

PRIMARY SOURCE: Ortopediya, Travmatologiya i Protezirovaniye, 1970, Nr 3 , pp 44-46

METHOD OF ROENTGENOGRAPHIC ANALYSIS OF THE BONE TISSUE

V. A. Landa and *L. A. Melnikov*

The possibilities of the method of roentgenographic analysis in studying of the bone tissue are briefly exposed in the article. The necessity of local examinations during study of pathological processes in the bone is stressed. A description is submitted of the camera constructed by the authors which permits to carry out local roentgenographic examinations, and to control the accuracy of focusing the section of specimen under study on the primary roentgen ray beam.

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SADOVSKIY, V. D., MALINEN, P. A., and MEL'NIKOV, L. A., Institute of Metal Physics, Academy of Sciences USSR

"Effect of High Pressure and a Pulsed Magnetic Field on Martensite Transformation in Fe-Ni and Fe-Ni-Mn Alloys"

Moscow, Metallovedeniye, No 9, Sep 72, pp 30-37

Abstract: A study was made of the effect of high hydrostatic pressure and a pulsed magnetic field on the character of the austenite-martensite transformation in alloys with a sharply pronounced athermal or isothermal type of transformation. The alloys studied were:

N31	0.015% C	31.6% Ni	0.3% Mn
N24G3	0.05	23.6	3.3
N23G3	0.06	22.7	3.3
N23G4	0.045	22.8	4.0

It was determined that hydrostatic pressure, lowering the martensite transition temperature, does not alter the explosive nature of the martensite transformation in alloy N31. For the isothermal transformation (in alloy N23G3), hydrostatic pressure sharply decreases the transformation speed and causes a

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SADOVSKIY, V. D., et al., Metallovedeniye, No 9, Sep 72, pp 30-37

lowering of the kinetic maximum temperature. Previous plastic deformation does not lower the temperature interval of transformation in alloy N31 but strongly decreases the magnitude of the first and subsequent bursts. In Fe-Ni-Mn alloys, prior plastic deformation, suppressing the isothermal transformation, lowers the volume of athermal transformation in the magnetic field very little. Tempering of austenite suppresses isothermal transformation but does not affect the athermal transformation activated by the pulsed field. 10 figures, 1 table, 15 bibliographic references.

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MEL'NIKOV, L. C. and MEL'NIKOVA, YE. P.

"Variations on a Theme: Metrics in Tournaments"

Diskretn. Analiz. [Discrete Analysis -- Collection of Works], No 22, Novosibirsk, 1973, pp 39-52 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V352)

Translation: Metric characteristics of radius and diameter of three types are studied, as well as the minimum length of a detour in the class of n-point tournaments. Precise high and low estimates of these characteristics in this class are given. In certain cases, classes of extreme tournaments are described.

1/1 Author's view

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MEL'NIKOV, L. N.

USE OF COLOR-MUSIC IN AN OPERATOR'S ROOM DURING ISOLATION

Article by [illegible] Petrov and L. N. Mel'nikov, Moscow. Kosmicheskaya Biologiya i Meditsina, Vol. 5, No. 5, 1971, pp 42-45, submitted 21 September 1970.

Abstract: In order to prevent possible impairments in the psychophysiological sphere of an operator during prolonged isolation provision must be made for a special organization of the interior. Color-musical compositions are an element of this interior. The article raises the question of the usefulness of the use of color and music for this purpose. The ideas of researchers working in this field are analyzed. On the basis of the authors' own practical work and theoretical investigations the article defines the principles for selecting color and musical programs and gives an analysis of the principal directions in their possible application at the operator's working place and during his rest.

A restricted space (wintering in the Arctic and Antarctica, prolonged voyages in submarines, interplanetary flights, etc.) once again gives rise to the problem of designing interiors. Accordingly, it is of particular interest to study the effect of light-color, musical and color-music effects on the general state, and especially on the emotional sphere of man. This article will discuss some problems in the use of color-music effects as an element in a dynamic interior.

A color-music effect is understood here as the artistic synthesis of color, organized in accordance with definite laws in the form of color combinations, alternating with music. The idea of such a synthesis was formulated long ago: it is attributed to the Italian artist Archimboldo of the late 16th century; he made an attempt to accompany a musical rendition with coloristic images (Klein, 1926). The first practical application of the color-music combination is associated with the name of our

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NIKOV, L. N.

SIMULATION OF DIURNAL AND SEASONAL RHYTHMS IN A SPACECRAFT INTERIOR

UDC 629.78/612"3"

[Article by L. N. Nel'nikov, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 3, pp 77-?, 1972, submitted for publication 5 July 1971]

Abstract: It appears that the design of a space cabin interior simulating diurnal and seasonal variations is a natural method which may facilitate man's adaptation to unusual psychological factors prevailing during a long space mission (isolation, monotony, etc.). According to the interiors can be covered with special window-simulating screens. The illusion may be more convincing if controlled variations of illumination and colored pictures are related to meteorological and astronomical events in nature. The paper describes approaches to the development of a meteorological-astronomical model of a type which reflects the main events (sunrise and sunset, light-darkness changes, twilight duration, rain and snow, etc.) typical of the middle latitudes of the Soviet Union (occurring in the latitude of 55°N).

Visually perceived objects play an important role in the diurnal stereotype of stimuli. Variations in illumination by hours of the day and by seasons, a definite regular alternation and replacement of the features in the surrounding landscape (sunrise and sunset, cloud cover, rain or snow, etc.) are some of the synchronizers of psychophysiological rhythms in the human body and create an ordinary background of vital functioning for it.

Accordingly, a natural means favoring man's adaptation to the unusual psychological factors of prolonged space flight is the arrangement of the interior to resemble terrestrial conditions, providing for simulation of elements of the natural diurnal and seasonal rhythm within it.

Natural diurnal and seasonal rhythms constitute the only natural factor artificially created within the interior of a spaceship cabin whose elements do not require experimental confirmation because we reproduce only that to which the human body has naturally adapted itself in everyday life.

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MEL'NIKOV, L. S.

"A Variety of Problems from Graph Theory"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology], No 3, Khar'kov, 1972, pp 103-114 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, 6V375).

Translation: 30 unsolved problems from graph theory are presented. Most are taken from various sources, some formulated by the author. The necessary references and results produced earlier are included.

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KOROL'KOV, V. L., MEL'NIKOV, M. A.

"Investigation of the Resistance of a Stream of Explosion Products From Secondary Explosives"

V sb. Ispol'z. vzryva v nar. kh-ve. Ch. 1 (Use of Blasting in the National Economy. Part 1--collection of works), Kiev, "Nauk. dumka", 1970, pp 83-91 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B58)

Translation: The authors study the change with distance in the electrical resistance of a stream of expanding products of explosion of an explosive charge as a function of the mass and density of the explosive, as well as the percent concentration of additives -- aluminum, NaCl and glass. PETN and RDX charges were used with weights in the range of 1.7-2.5 g and particle sizes of less than 0.1 mm. The charges were pressed into a polystyrene shell with wall thickness of 5 mm open at one end. The detonation was initiated by the electropulse method, and the development of the detonation was recorded by a high-speed camera. Electrocontact pickups (trigger and measurement) were installed on the path of expansion of the pro-

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KOROL'KOV, V. L., MEL'NIKOV, M. A., Ispol'z. vzryva v nar. kh-ve. Ch. 1, Kiev, "Nauk. dumka", 1970, pp 83-91

ducts of the explosion. The pickups were made from a copper tube 8 mm in diameter with a wall thickness of 1 mm filled with epoxy resin, and a steel rod along the center of the tube and extending 3 mm beyond the end of the tube. The outer electrode was grounded, and voltage was applied to the center electrode. The voltage drop was recorded on the OK-19 oscillograph with 20 μs scanning. Graphs are given for the resistance of explosion products as a function of the weight of the explosive charge and the charging density. The curves were obtained with the pickup located 100 mm from the charge. It is concluded that the resistance of the products of explosion increases linearly with an increase in charge weight, and remains constant with a change in density. It is deduced from this that the resistance of the products of explosion decreases as they expand, the maximum resistance being reached before the detonation wave passes through the charge. It is pointed out that as the percent concentration of the inert additive (glass) increases, there is a reduction in electrical resistance due to a reduction in the amount of the products of explosion and the pressure in them. The corresponding curve for resistance as a function of NaCl content lies below the curve with glass, which is attributed to dissociation of the NaCl molecules taking place with absorption of

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KOROL'KOV, V. L., MEL'NIKOV, M. A., Ispol'z. vzryva v nar. kh-ve. Ch. 1, Kiev, "Nauk. dumka", 1970, pp 83-91

the energy of the products of explosion. The curve with aluminum has a maximum with a three percent aluminum concentration; in the authors' opinion, complete combustion of aluminum corresponds to this maximum under the conditions of the experiment. It is stated that the rules obtained for the change in resistance of the products of explosion were used in experiments on quenching of a high-current electrical discharge in the tank circuit of a capacitor charged from 5 to 15 kV.

Abstractor's Note: The conclusion of the authors concerning the fact that the electrical resistance of the products of explosion decreases as they expand from the charge and has a maximum before the detonation wave passes through the charge does not agree with the results of research by other authors, for instance with the measurements of conductivity of the products of explosion in detonation waves (see Dremin, A. N., Savrov, S. D., Trofimov, V. S., Shvedov, K. K., "Detonation Waves in Condensed Media", Moscow, "Nauka", 1970, RZh-Mekh, 1971, 5B218K). O. K. Rozanov.

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ALENICHEV, V. S., MEL'NIKOV, M. A., BARCHENKO, T. N.,
Tomsk

"Explosive Wires as a Source of Shock Waves in Water"

Moscow, Electronnaya Obrabotka Materialov,
No. 1 (37), 1971, pp 32-35

Abstract: The electrical explosion of wires is widely used in technological processes such as stamping, expansion of pipes and so forth.

An experimental investigation was made in order to verify the validity of formulae giving the optimum length and cross section of wire as a function of voltage, capacity of the circuit, and natural frequency of the circuit. The test wire was placed in a tank filled with water. The shock wave pressure was measured by an impact pressure transducer located 150-200 millimeters from the wire axis.

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ALENICHEV, V.S., etal, Electronnaya Obrabotka Materialov, No 1 (37), 1971, pp 32-35

The agreement between calculations and tests was satisfactory.

It was also discovered that the wire material having the lowest resistivity produces the highest shock wave pressure.

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UDC 532.525.1

MEL'NIKOV, V. A., GAVRILIN, A. I., DIMOVA, N. I., and KALASHNIKOV, A. L., Tomsk Polytechnical Institute Imeni S. M. Kirov

"Mechanism of the Explosion Initiation of Silver and Thallium Azides by Electrical Discharge"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 9, Sep 70, pp 2321-2325

Abstract: Experimental data are reported on the explosion initiation of silver and thallium azides by means of an electrical discharge. The samples studied were subjected to charge impulses with a front of $\tau_{fr}=5\cdot10^{-6}$ sec and amplitude 4.5 kv. Critical energy of the initiation of AgN_3 and TlN_3 by an electrical discharge was measured by oscillography of the current, charge and the beginning of glow; it was found to be $0.2\cdot10^{-3}$ and $0.5\cdot10^{-3}$ J respectively. The results support the contention about thermal nature of the initiation of azides by electrical discharge. It was shown experimentally that a spark with an energy below that of the critical one does not cause the explosion of above azides. The spark energy appears to be the determinant initiation parameter.

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UDC 669.017:537+535

MEL'NIKOV, N. A., PAKCHANIN, L. M., and PWTRENKO, P. V., Kiev State University

"Study of Recovery Processes in a Ni-20% Cr Alloy"

Kiev, Metallofizika, No 40, 1972, pp 78-84

Abstract: The effect of various defects on close ordering processes was studied. An investigation of the relationship of residual electrical resistance to quench temperature after isochronous annealing of the alloys was conducted after the latter were subjected to various treatments. The blocks of coherent scattering, microdistortions, and dynamic and static distortions of the alloy were measured. It was shown that the residual electrical resistance depends essentially on the initial state of the alloy. In the temperature region of -196 to -90°C, recovery is accompanied by a drop of electrical resistance which at a higher temperature varies by growth. The results obtained are explained by migration of the different defects leading to close ordering. 5 figures, 21 bibliographic references.

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UDC 541.127

SHEREMET, N. G., VASIL'YEV, A. F., KHASKIN, B. A., and MEL'NIKOV, N. N.

"Kinetics of the Reaction of 4,4'-Dipyridyl With Trimethyl Phosphate"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2735-2738

Abstract: It was shown that the rate of the reaction of 4,4'-dipyridyl with trimethyl phosphate in presence of water can be described by the kinetic equation for a sequential-parallel two stage reaction. The reaction rate constant depends on the amount of water in the reaction mixture.

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USSR

UDC 547.26'118

KHASKIN, B. A., TORGASHEVA, N. A., and MEL'NIKOV, N. N., All Union Scientific Research Institute of Chemical Plant Protective Agents

"Reactions of Phosphorus Containing Disulfides. Reaction of Bis(dialkoxy- and Diarylhydroxythiophosphoryl)disulfides With Hydrazines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, p 2083

Abstract: Reaction of bis(dialkoxy- and diarylhydroxythiophosphoryl) disulfides with phenylhydrazine carried out at room temperature in ether or benzene solution yields phenylhydrazinium salts of O,O-dialkyl and O,O-diaryldithiophosphoric acid. In contrast to this, reactions with N,N-dimethylhydrazine yield dimethylammonium salts of O,O-dialkyldithiophosphoric acid.

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UDC 547.26'118

KHASKIN, B. A., MEL'NIKOV, N. N., and TORGASHEVA, N. A., All Union Scientific Research Institute of Chemical Plant Protective Agents

"Reactions of Phosphorus Containing Disulfides. I. Reaction of Bis-(dialkoxy- and Diaryloxythiophosphoryl)disulfides With Primary Amines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1916-1918

Abstract: The reaction of bis(dialkoxy- and bis(diarylhydroxythiophosphoryl)-disulfides with primary aliphatic amines was investigated. It was shown that this reaction is a new method for the synthesis of thiophosphorylsulfene-N-alkylamides. This reaction is relatively fast at room temperature in organic solvents, yielding quantitative amounts of product. The structure of the products was confirmed by independent syntheses and PMR and IR spectroscopy.

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GRAPOV, A. F., KOZLOV, V. A., BARKINA, E. I., and MEL'NIKOV, N. N., All Union Scientific Research Institute of Chemical Plant Protective Agents, and the Branch of the Scientific Physical-Chemical Research Institute imeni L. Ya. Karpov

"Chlorocyclohexylthiophosphonic Acid and Cyclohexenylthiophosphonic Acid Chlorides and Amides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1919-1921

Abstract: Heating phosphorus trichloride with chlorocyclohexyldichlorophosphine at 125° for 3 hrs yields 2-chlorocyclohexylthiophosphonic acid dichloride, which reacted with triethylamine in benzene solution converts to cyclohexen-1-ylthiophosphonic acid dichloride. α-Chlorocyclohexyldichlorophosphine reacted with triethylamine yields cyclohexen-1-yldichlorophosphine which can be converted to a derivative of tetracoordinated phosphorus by an exchange reaction with phosphorusthiotrichloride.

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USSR UDC 547.241

MIKHAYLOVA, O. B., GRAPOV, A. P., and MEL'NIKOV, N. N.

"Phosphorylated Semicarbazides and Thiosemicarbazides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1449-1451

Abstract: Reaction of the hydrazides of O-arylmethylphosphonic and thiophosphonic acids as well as that of the N,N-diethylamidomethylthiophosphonic acid with alkyl- and arylisocyanates, alkyl- and arylisocyanates was investigated. The products of these reactions are β-phosphorylated semicarbazides and thiosemicarbazides. The phosphonic acid hydrazides react faster with isocyanates than corresponding thiophosphonic acid hydrazides. The structures of all products were confirmed by IR and PMR spectral data.

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USSR

UDC 547.26'118

MEL'NIKOV, N. N., KRYLOVA, T. P., and VLADIMIROVA, I. L., All Union Scientific Research Institute of Chemical Plant Protective Agents

"Amidohydrazides of Thiophosphoric Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, p 1646

Abstract: A series of amidohydrazides of the thiophosphoric acid was synthesized by the reaction of nonsymmetric dimethylhydrazine with O-alkyl-N-amidochlorothiophosphates in refluxing benzene and in the presence of triethylamine. The products exhibit weak acaricidal and fungicidal properties.

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Nitrogen Compounds

USSR

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MEL'NIKOV, N. N., KHASKIN, B. A., VORONKOVA, V. V., YAKIMENKO, Ye. F., and SABLINA, I. V.

"Thermal Stability of Quaternary Salts of 4,4'-Dipyridyl"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 306-311 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N572 by V. A. Kozlov)

Translation: A study was made of the thermal stability of compounds with the general formula (I) [X = I, $MeOSO_3$, $(MeO)_2PO_2$, and (MeO)MeS)-PO_2] and II by paper electrophoresis. Examples. (1) 15 ml of MeI is added to 0.02 mole of 4,4'-dipyridyl (III). The mixture is sealed in an ampul and allowed to stand at 20° for 24 hours when the crystals are filtered off and washed with ether to obtain I (X = I), yield 72%, melting point 240° (alcohol containing water = 3:7). I [X = (MeO)(MeS) PO_2) (Ia) is obtained in a similar manner by heating to 50° for 12 hours. Purification is carried out by reprecipitation, adding an acetonitryl solution of I a drop at a time to acetone at -50 to -70° to obtain Ia, yield 34%, melting point 59-61.5°. (2). A mixture of 0.03 mole of III, 0.04 mole of $(MeO)_3 \cdot PO$ and 10 ml of water is heated to 90-100° for 5

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MEL'NIKOV, N. N., et al., Khim. sredstva zashchity rast, No 2, 1972, pp 306-311

hours in the presence of 0.1 g of alkaline activated carbon (A brand). The carbon is filtered off, the filtrate evaporated in a vacuum, the residue kept in a vacuum (40-50°/0.2 mm) and treated with methyl ethyl ketone. The mass crystallizes and purification is carried out by reprecipitation to obtain I /X = $(MeO)_2PO_2$/(Ib), yield 90%, melting point 117-20°. 0.03 mole of III is added to 0.06 mole of $(MeO)_3$-PO at 60-65%, heated for 2 hours to 7-80°, left to stand for 7 days at 20° after which the crystals formed are washed with dimethyl formamide, dissolved in MeCN, and poured a drop at a time into AcOEt chilled by dry ice to obtain II /X = $MeO)_2PO_2$/, yield 53%, melting point 95-102°. I is kept at 90, 120, 150, and 200°. I (X = I, $MeOSO_3$) when heated for 4 hours to 200° forms a monoquaternary salt and when heated to over 200° it forms the original III. Ib at 90° forms on an electrophoregram the spot of a cation of a monoquaternary salt within 3 hours and at 120 and 150° within 20 to 10 min, respectively. Under these conditions the cation of N-methyl-pyridinium is formed within 40 and 10 min, respectively. Ia is even less stable at 90, 120, and 150°; the monoquaternary salt is formed within 20 and 5-6 min, respectively, and at 120-150° the cation of N-methylpyridinium is formed within 30 min. II is not broken down at 90° but at 120 and 150° forms

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MEL'NIKOV, N. N., et al., Khim. sredstva zashchity rast, No 2, 1972, pp 306-311

III within 60 and 30 min, respectively. The thermal stability of I was shown to depend on the structure of the anion and falls into the following series: I ~ $MeOSO_3$ > $(MeO)_2PO_2$ > (MeO)-$(Mes)PO_2$.

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GOLYSHIN, I. M., MONOVA, V. I., KLIMKINA, L. P., IVANOVA, S. N., MEL'NIKOV, N. N., KHUSNETDINOVA, F. I., SHVETSOV-SHILOVSKIY, N. I., SAMYSHKINA, M. A., and BOLONINA, YE. I.

"An Antiseptic"

USSR Author's Certificate No 355008, Div B, filed 11 Jan 71, published 13 Nov 72 (from RZh-Khimiya, No 14, 25 Jul 73, abstract No 14N616 P by T. A. Belyayeva)

Translation: It is proposed that 4,5,6-trichlorobenzoxazolinone-2 (I) be used as an antiseptic for nonmetallic materials, and at the same time is a bactericide, which considerably extends the sphere of its action. Compound I is used in a 2-2.5% concentration to control mold, wood-rotting and wood-discoloring fungi.

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MEL'NIKOV, N. N., SHVETSOV-SHILOVSKIY, N. I., LYALYAKINA, N. P., and RUDNEVA, N. I.

"Synthetic Method for β-Substituted Hydrazides of 2,3-Dihydro-6-methyl-1,4-oxathiyncarboxylic Acid"

USSR Author's Certificate No 364615, filed 20 Jul 70, published 20 Feb 73 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N540 P)

Translation: Title compounds with the general formula R'NHN(R)COCSCH$_2$CH$_2$OCO(Me) (I), exhibiting biological activity are obtained by reacting 2,3-dihydro-6-methyl-1,4-oxathiyncarboxylic acid chloride with a hydrazine or β-acylhydrazine in presence of an HCl (gas) acceptor, for example excess of the starting hydrazine (R, R', yield of I in %, m.p. in °C being reported): H, H, 99, 184; H, Ph, 86.5 - (oil); Ph, Ac, 26.8, 138-9; Ph, iso-ProCo, 99, 108-9; Ph, EtCO, 67.2, - (oil); Ph, PhCO, 44.3, - (oil).

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